# HOPKINS COUNTY

### (Hopkins County Water Service Area Map)

- Estimated 1999 population of 45,700--95% on public water
- Estimated 2020 population of 44,800--96% on public water
- 690 miles of water lines, with plans for 25 additional miles
- Estimated funding needs for public water 2000-2005--$3,105,000
- Estimated funding needs for public water 2006-2020--$0

Hopkins County had an estimated population of 45,683 (18,815 households) in 1999 with a projected population of 44,756 (19,795 households) in 2020. Public water is provided to over 18,500 households, or over 95 percent of the county's residents. In areas of the county not served by public water, about half rely on private domestic wells and half rely on other sources. About 140 households will be added to public water service through new line extensions in 2000-2020.

***Estimated Costs - Proposed Projects, 2000-2005***

| COUNTY/System | | New Customers | | Rehab | Source | Treatment | Tanks/ Pumps | Total |
|---|---|---|---|---|---|---|---|---|
| | Miles | Number | Cost in $1000 | in $1000 | in $1000 | in $1000 | in $1000 | in $1000 |
| **HOPKINS** | | | | | | | | - |
| South Hopkins W/D | 32 | 106 | 584 | | | | 425 | 1,009 |
| North Hopkins W/D | 4 | | 120 | | | | 338 | 458 |
| Nebo | 5 | 14 | 82 | | | | | 82 |
| Mortons Gap | | | | 220 | | | 40 | 260 |
| Nortonville | 9 | 105 | 300 | | | | | 300 |
| White Plains | 2 | 3 | 28 | | | | | 28 |
| Dawson Springs | | | | 225 | | | 500 | 725 |
| Madisonville | 1 | 19 | 47 | 31 | | | | 78 |
| Earlington | 4 | | 148 | 17 | | | | 165 |
| **TOTAL** | **25** | **141** | **1,309** | **493** | | | **1,303** | **3,105** |

## PUBLIC WATER SYSTEMS

The residents of Hopkins County are provided water services by ten water systems, three regional water districts and seven municipal systems. There is one private community system. The water districts are the South Hopkins Water District, the North Hopkins Water District and the Nebo Water District. All of the water districts purchase pre-treated water from other systems within the Pennyrile. Of the seven municipal systems, Dawson Springs, Earlington, Hanson, Madisonville, Mortons Gap, Nortonville and White Plains treat their own water and Hanson and Mortons Gap purchase treated water.

# WATER SERVICE AREAS
## HOPKINS COUNTY
## Kentucky


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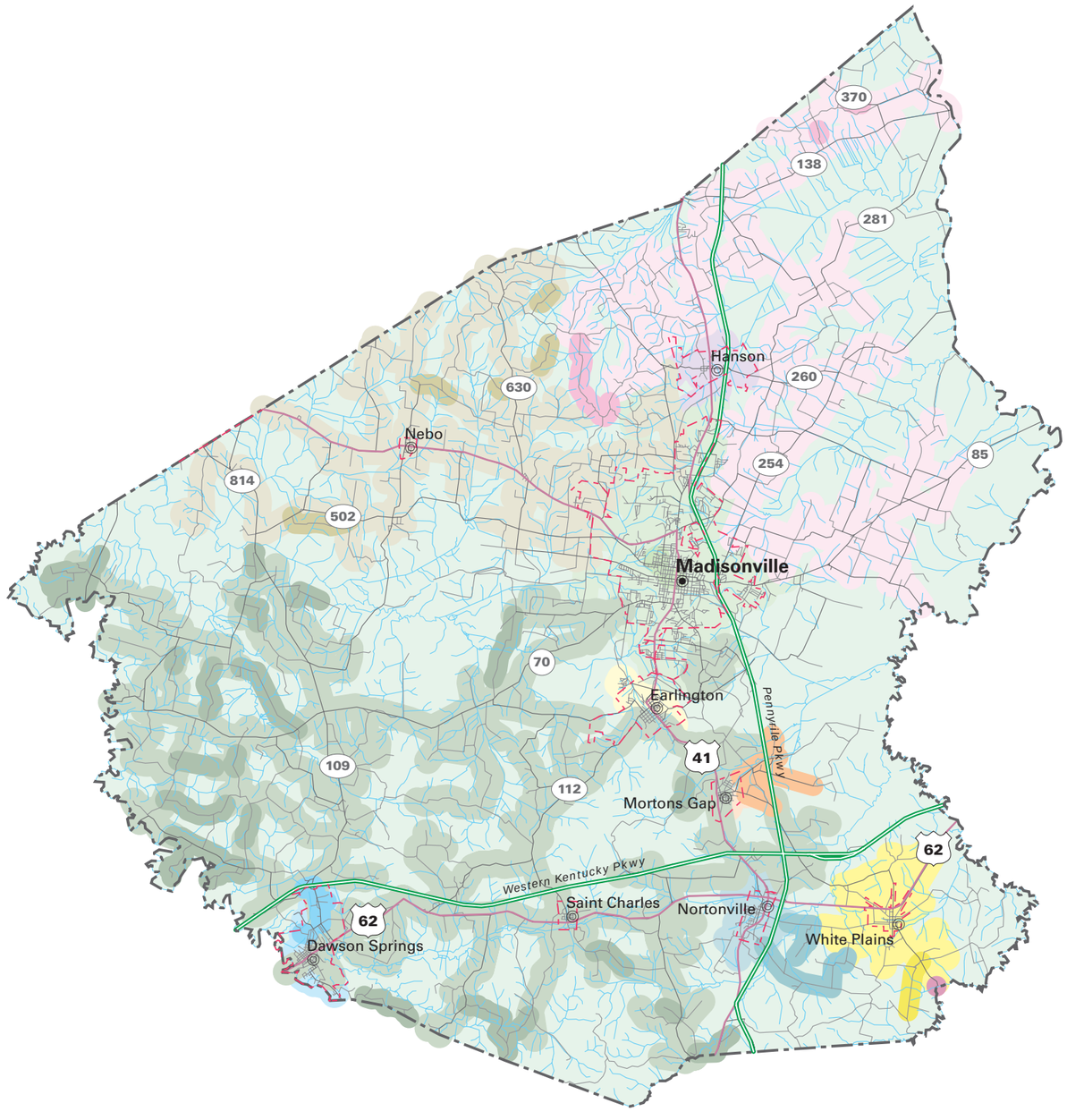


### WATER SERVICE STATUS BY OWNER

| EXISTING SERVICE AREA | PROPOSED SERVICE AREA | |
|---|---|---|
| | | WHITE PLAINS WATER SYSTEM |
| | | SOUTH HOPKINS WATER DISTRICT |
| | | NORTONVILLE WATER WORKS |
| | | NORTH HOPKINS WATER DISTRICT |
| | | NEBO WATER DISTRICT |
| | | MORTONS GAP WATER DEPARTMENT |
| | | MADISONVILLE LIGHT AND WATER |
| | | HANSON WATER SYSTEM |
| | | EARLINGTON WATER AND SEWER SYSTEM |
| | | DAWSON SPRINGS WATER AND SEWER SYSTEM |
| | | CHRISTIAN COUNTY WATER DISTRICT |

## SOUTH HOPKINS WATER DISTRICT

PWSID: ..... 0540406
System Type: ..... COMMUNITY
Owner Type: ..... WATER DISTRICT
Surface Source:
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): ..... 0.00
Percent Daily Average Production: ..... 0.00
Total Tank Storage Capacity (gallons): ..... 890,000.00
Total Service Connections: ..... 2,642.00
Number of Employees: ..... 6.00
Treatment Operator Class: ..... 2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons: ..... 4.54
O/M costs 1997: ..... 524,482.00
O/M costs per Service Connection: ..... 199.12
Net Revenue 1997: ..... 44,744.00
Total Water Produced 1997 (gallons): ..... 0.00
Water Sold 1997 (gallons): ..... 203,583,175.00
Unaccounted-for Water 1997 (%): ..... 18.57

The South Hopkins Water District purchases treated water from the Cities of Dawson Springs and Madisonville at a cost of $.9931 and $1.61 per 1000 gallons, respectively. They currently service 2,642 customers; of those, 2,549 are residential, 81 commercial and 9 industrial. The district also sells water to the City of Mortons Gap and services approximately 102 customers that are located in Caldwell County.

The district has a total storage capacity of 889,000 gallons. This capacity is stored in 5 tanks located at various points within their service territory. On an average day the district utilizes approximately 560,000 gallons of water.

At present, the South Hopkins Water distribution system is considered to be in good condition, with adequate pressure and volume throughout the system to service its existing customer base. Overall system losses were 21% in 1997. However, according to the Hopkins County Water Supply Plan of 1995, the district water requirements will grow by at least 10% by the year 2010, which will increase its usage to an average of 616,000 gallons per day. Because of the growth that has taken place within the system and past system constraints there a several households that currently lack adequate services.

NORTH HOPKINS WATER DISTRICT

PWSID: ..... 0540138
System Type: ..... COMMUNITY
Owner Type: ..... WATER DISTRICT
Surface Source:
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): ..... 0.00
Percent Daily Average Production: ..... 0.00
Total Tank Storage Capacity (gallons): ..... 100,000.00
Total Service Connections: ..... 950.00
Number of Employees: ..... 2.00
Treatment Operator Class: ..... 2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons: ..... 8.85
O/M costs 1997: ..... 192,747.00
O/M costs per Service Connection: ..... 205.05
Net Revenue 1997: ..... 29,582.00
Total Water Produced 1997 (gallons): ..... 0.00
Water Sold 1997 (gallons): ..... 50,641,000.00
Unaccounted-for Water 1997 (%): ..... 5.70

The North Hopkins Water District purchases treated water from the City of Madisonville at the cost of $1.71 per 1000 gallons. They currently service 950 customers of those, 936 are residential, 10 commercial and 4 industrial. The district has a total storage capacity of 200,000 gallons, which is stored in two tanks. On an average day the district utilizes approximately 167,000 gallons of water or approximately 83.5% of its storage capacity.

According to the Hopkins County Water Supply Plan of 1995 the district water needs will grow by at least 10% by the year 2010 which will increase its usage to an average of 183,700 gallons per day or over 90% of their storage capacity. The territory serviced by the district is relatively well served with only a few sparsely scattered households without current service.

NEBO WATER DISTRICT

PWSID: ..... 0540977
System Type: ..... COMMUNITY
Owner Type: ..... WATER DISTRICT
Surface Source:
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): ..... 0.00
Percent Daily Average Production: ..... 0.00
Total Tank Storage Capacity (gallons): ..... 75,000.00
Total Service Connections: ..... 1,307.00

Number of Employees:..... 5.00
Treatment Operator Class:.....2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons:..... 5.17
O/M costs 1997:..... 309,791.00
O/M costs per Service Connection:..... 238.85
Net Revenue 1997:..... 12,401.00
Total Water Produced 1997 (gallons):..... 0.00
Water Sold 1997 (gallons):..... 81,790,000.00
Unaccounted-for Water 1997 (%):..... 5.97

The Nebo Water District purchases treated water from the City of Madisonville at the cost of $1.71 per 1000 gallons. They currently service 1,290 customers of those, 1,269 are residential, 15 commercial and 6 industrial. The district has a total storage capacity of 375,000 gallons, which is stored in three tanks. On an average day the district utilizes approximately 262,000 gallons of water.

According to the Hopkins County Water Supply Plan of 1995 the district water requirements will grow by at least 9.6% by the year 2010 which will increase its usage to an average of 287,150 gallons per day. At present, the Nebo Water distribution system is considered to be in fairly good condition, with a few problems being caused by low pressure and low volume. The territory serviced by the district is relatively well served with only a few sparsely scattered households without current service.

## MORTONS GAP WATER DEPARTMENT

PWSID:..... 0540269
System Type:.....COMMUNITY
Owner Type:.....MUNICIPAL
Surface Source:
Purchase Source:
Well Source:.....Yes
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.00
Percent Daily Average Production:..... 0.00
Total Tank Storage Capacity (gallons):..... 200,000.00
Total Service Connections:..... 503.00
Number of Employees:..... 2.00
Treatment Operator Class:.....2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons:..... 4.02
O/M costs 1997:.....Not available
O/M costs per Service Connection:.....Not available
Net Revenue 1997:.....Not available
Total Water Produced 1997 (gallons):.....Not available
Water Sold 1997 (gallons):.....Not available

Unaccounted-for Water 1997 (%): ..... Not available

Mortons Gap Water Department purchases treated water from the South Hopkins Water District for $1.48 per 1000 gallons. They currently serve 503 total customer of whom, 485 are residential and 18 are commercial. Residential customers of the system are currently charged $20.13 for 5000 gallons of water. On an average day the system uses approximately 102,098 gallons of water. Currently the system has a total storage capacity of 200,000 gallons.

The Hopkins County Water Supply Plan of 1995 indicates that only 12.7% of the total water utilized annually are credited to loss or non-revenue categories, which is considered very good by industry standards. The distribution system of the Mortons Gap Water Department seems to be in good shape with the exception of several undersized lines that have experienced numerous leaks. The systems' storage tank is also in dire need of painting and cleaning. Although the Water Supply Plan indicates only modest growth for the city, there is an area just west of the systems boundaries that contains houses that aren't currently being served by any system

NORTONVILLE WATER WORKS

PWSID: ..... 0540328
System Type: ..... COMMUNITY
Owner Type: ..... MUNICIPAL
Surface Source:
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): ..... 0.43
Percent Daily Average Production: ..... 54.00
Total Tank Storage Capacity (gallons): ..... 270,000.00
Total Service Connections: ..... 902.00
Number of Employees: ..... 5.00
Treatment Operator Class:
Distribution Operator Class: ..... 2BD
Customer Rate for 1,000 Gallons: ..... 3.15
O/M costs 1997: ..... Not available
O/M costs per Service Connection: ..... Not available
Net Revenue 1997: ..... Not available
Total Water Produced 1997 (gallons): ..... Not available
Water Sold 1997 (gallons): ..... Not available
Unaccounted-for Water 1997 (%): ..... Not available

The Nortonville Water Department gets its water from a series of wells that are located at various points within its territory. This water is then treated at its treatment facility, which has a limited design capacity of 432,000 gallons per day. On an average day they will withdraw and treat approximately 237,396 gallons of water or almost 55% of the plant's capacity. The water source is wells. This treatment process includes disinfecting, chlorinating and fluoridation. The department's storage system consists of two tanks and a wet well. The total storage capacity is 270,000 gallons. Nortonville currently serves 902 customers, of whom 849 are residential and 53 are categorized as commercial. Of these customers, some 300 live outside of the city limits of Nortonville. The typical residential customer of Nortonville is charged about $15.75 for 5,000 gallons of water.

The Nortonville system has a rather large problem--low volume-- due to inadequate sized lines. In some areas there are six inch lines that run into two inch lines that meander into one inch lines and finally a three quarter inch line. In these situations the water volume is extremely low. The Hopkins County Water Supply Plan of 1995 indicated that Nortonville has experienced a 29.5% loss of water, which usually is an indication of leaks or inoperable meters. The Plan does not project significant growth for Nortonville, however there are several households just outside of the boundaries of the system that might be better served by Nortonville than by a water district. In order to service these households as well as others it will be necessary to replace some of the existing lines with newer and larger ones

WHITE PLAINS WATER SYSTEM

PWSID: ..... 0540465
System Type: ..... COMMUNITY
Owner Type: ..... WATER DISTRICT
Surface Source:
Purchase Source:
Well Source: ..... Yes
Sells Water to:
Treatment Plant Capacity (MGD): ..... 0.00
Percent Daily Average Production: ..... 56.00
Total Tank Storage Capacity (gallons): ..... 120,000.00
Total Service Connections: ..... 500.00
Number of Employees: ..... 4.00
Treatment Operator Class:
Distribution Operator Class: ..... 2BD
Customer Rate for 1,000 Gallons: ..... 4.35
O/M costs 1997: ..... Not available
O/M costs per Service Connection: ..... Not available

Net Revenue 1997: ..... Not available
Total Water Produced 1997 (gallons): ..... Not available
Water Sold 1997 (gallons): ..... Not available
Unaccounted-for Water 1997 (%): ..... Not available

The White Plains Water System gets its water from a series of wells that are located at various points within their territory. This water is then treated at its treatment facility, which has a limited design capacity of 120,000 gallons per day. On an average day they will withdraw and treat approximately 90,000 gallons of water, or around 75% of the plant's capacity. This treatment process includes disinfecting, chlorinating and fluoridation. The system's storage system consists of a tank and a wet well. The total storage capacity of the system is 120,000 gallons. White Plains currently serves 500 customers, of whom 490 are residential and 10 are categorized as commercial. Of this customer base about 205 reside outside the city limits of White Plains. The average residential customer of White Plains is charged approximately $21.75 for 5000 gallons.

In recent years the distribution system has had major problems with leakage due to aged lines and also volume problems that result from lines that are too small. Another cause of major line breaks is the caving in of old abandoned mining shafts causing losses in excess of 20%. In recent years the City has attempted to replace many of the older lines within their system but many more need to be replaced.

According to the Hopkins County Water Supply Plan the city is projected to experience only slight growth but because of more recent developments the city is positioning itself for greater than projected growth. Developments like the installation of a natural gas system and the approval for the construction of a comprehensive sewer system will have tremendous impact on the growth of the City's population. Based on these development and other it is reasonable to assume that the existing water treatment facility may not be able to meet the future needs and the distribution system may need further upgrading

## DAWSON SPRINGS WATER AND SEWER SYSTEM

PWSID: ..... 0540958
System Type: ..... COMMUNITY
Owner Type: ..... MUNICIPAL
Surface Source: ..... LAKE BESHEAR
Purchase Source:

Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): 2.88
Percent Daily Average Production: 40.00
Total Tank Storage Capacity (gallons): 2,100,000.00
Total Service Connections: 1,579.00
Number of Employees: 9.00
Treatment Operator Class: 2D
Distribution Operator Class: 3A
Customer Rate for 1,000 Gallons: 5.92
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The Dawson Springs system gets its raw water from Lake Breshear, located just south of the city limits. The system also operates their own treatment facility, which has a capacity of 2,880,000 gallons per day. Presently, the system uses approximately 1.1 million gallons per day or 38% of capacity. Along with the 1,579 customers, of which 1,438 are residential, 136 are commercial and 5 are industrial, the system also supplies water to the South Hopkins Water District. The calculated charge for 5,000 gallons of water to their residential customers is currently $17.70, which when compared to other municipal systems within the Pennyrile is considered to be reasonable. The system's water storage structure consists of four water storage tanks and a clear well that has a total storage capacity of 2,140,600 gallons

Dawson Springs, like many of the other systems in the Pennyrile has an abundance of problems that go along with dealing with an older system. The aged lines require constant leak repairs and some struggle with low-pressure areas and inadequate volume due to small waterlines. The Hopkins County Water Supply Plan of 1995 tells of water losses in excess of 22% which is the result of leaks and perhaps inoperable water meters. The Supply Plan also predicts growth within the city of approximately 24%, which should in turn create an increase demand for water to about the 1.35 million gallons per day level. Since this demand will probably not exceed 50% of the existing plant capacity, the city should be able to handle the increased demand. However, due to the age of the distribution system additional funds will be needed to adequately provide the most cost-effective service possible to the residents of Dawson Springs.

MADISONVILLE LIGHT AND WATER

PWSID: ..... 0540936
System Type: ..... COMMUNITY
Owner Type: ..... MUNICIPAL
Surface Source: ..... PEE WEE LAKE
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): ..... 8.00
Percent Daily Average Production: ..... 42.00
Total Tank Storage Capacity (gallons): ..... 7,900,000.00
Total Service Connections: ..... 10,387.00
Number of Employees: ..... 16.00
Treatment Operator Class: ..... 3D
Distribution Operator Class: ..... 4A
Customer Rate for 1,000 Gallons: ..... 2.99
O/M costs 1997: ..... Not available
O/M costs per Service Connection: ..... Not available
Net Revenue 1997: ..... Not available
Total Water Produced 1997 (gallons): ..... Not available
Water Sold 1997 (gallons): ..... Not available
Unaccounted-for Water 1997 (%): ..... Not available

The Madisonville Water System gets its water from three sources, the Green River, Lake Pee-Wee and City Lake. The raw water is then pumped to one of Madisonville's two water treatment facilities. Treatment plant #1, the City Park Facility has a treatment capacity of 1.5 million gallons per day and gets its water from the City Lake. Treatment Plant #2, the Lake PeeWee Treatment Facility has a capacity of 8.0 million gallons per day and is supplied by Green River via Lake PeeWee. On an average day the two treatment facilities treat only 3,730,764 gallons or less than 40% of their capacity. The Madisonville Storage system is made up of four tanks located at various points within its territory and two clear wells located at each of its treatment facilities. The total storage capacity of the system is 7,875,000 gallons. The Madisonville system serves 10,387 customers, of whom 9,339 are residential and 1,048 are categorized as commercial. Along with servicing the residents of the city, approximately 1100 of its' customer base resides in the county. The price charged to residential customers for 5,000 gallons of water is $14.94.

The distribution system has very few inadequate line sizes, so volume and pressure concerns are minimal. However, according to the Hopkins County Water Supply Plan of 1995, Madisonville has 31.5% of its annual usage categorized as non-revenue water loss, which more than doubles the standard rate (15%). The Plan also projects the future growth in

demand for water in the systems' territory to grow by upwards of 38% which will cause for some upgrading of the distribution system. Although the city has taken major step in recent years to reduce its loss, by replacing aged water lines and eliminating inoperable meters, because of these and other factors there is still much upgrading to be done.

EARLINGTON WATER AND SEWER SYSTEM

| | |
|---|---|
| PWSID: | 0540108 |
| System Type: | COMMUNITY |
| Owner Type: | MUNICIPAL |
| Surface Source: | LOCH MARY LAKE |
| Purchase Source: | |
| Well Source: | |
| Sells Water to: | |
| Treatment Plant Capacity (MGD): | 0.50 |
| Percent Daily Average Production: | 28.00 |
| Total Tank Storage Capacity (gallons): | 278,000.00 |
| Total Service Connections: | 730.00 |
| Number of Employees: | 3.00 |
| Treatment Operator Class: | 2D |
| Distribution Operator Class: | 2A |
| Customer Rate for 1,000 Gallons: | 2.92 |
| O/M costs 1997: | Not available |
| O/M costs per Service Connection: | Not available |
| Net Revenue 1997: | Not available |
| Total Water Produced 1997 (gallons): | Not available |
| Water Sold 1997 (gallons): | Not available |
| Unaccounted-for Water 1997 (%): | Not available |

The Earlington Water and Sewer system gets its raw water from the Loch Mary Reservoir that is located on the outer edge of the city limits. The system also operates their own treatment facility, which has a capacity of 500,000 gallons per day. Presently, the system uses approximately 130,000 gallons per day or 26% of capacity. The system has a total water storage capacity of 400,000 gallons. The system currently services 778 customers, of whom 774 are residential and 4 are commercial. The calculated charge for 5,000 gallons of water to their residential customers is $14.60, which is one of the lowest charges in the Pennyrile.

Earlington, unlike many of the other systems in the Pennyrile has had the opportunity to almost completely replace all of the lines of their distribution system with new PVC lines. The Hopkins County Water Supply Plan of 1995 tells of water losses in excess of 29.8%, the result of leaks and perhaps inoperable water meters. Now due to the updates the water loss

has been lowered to below the acceptable 15% level. Even with the practically new distribution system the system is still in need of some assistance

HANSON WATER SYSTEM

| | |
|---|---|
| PWSID: | 0540656 |
| System Type: | COMMUNITY |
| Owner Type: | MUNICIPAL |
| Surface Source: | |
| Purchase Source: | |
| Well Source: | |
| Sells Water to: | |
| Treatment Plant Capacity (MGD): | 0.00 |
| Percent Daily Average Production: | 0.00 |
| Total Tank Storage Capacity (gallons): | 150,000.00 |
| Total Service Connections: | 430.00 |
| Number of Employees: | 4.00 |
| Treatment Operator Class: | 1D |
| Distribution Operator Class: | |
| Customer Rate for 1,000 Gallons: | 4.42 |
| O/M costs 1997: | Not available |
| O/M costs per Service Connection: | Not available |
| Net Revenue 1997: | Not available |
| Total Water Produced 1997 (gallons): | Not available |
| Water Sold 1997 (gallons): | Not available |
| Unaccounted-for Water 1997 (%): | Not available |

The Hanson Water System purchases treated water from the City of Madisonville at the cost of $1.54 per 1000 gallons. They currently service 430 customers of those, 414 are residential, and 14 commercial and 2 are industrial or other. The system has a total storage capacity of 150,000 gallons, which is stored in two tanks. On an average day the customers of Hanson utilize approximately 75,000 gallons of water. The calculated charge for 5,000 gallons of water to their residential customers is currently $22.10, which when compared to other systems within the Pennyrile is considered to be reasonable.

At present, the Hanson distribution system is considered to be in fairly good condition, with a few problems being caused by leaks and malfunctioning meters, low pressure and low volume. According to the Hopkins County Water Supply Plan of 1995 the system's territorial population growth will be minimal by the Year 2010. However it should be noted that with the location of a 120 bed Veterans Nursing facility (with 156 employees) and Carhart's new 300 employee distribution Center, the water consumption is projected to increase by 33,000 gallons per day. To accommodate this growth, the City has constructed a

500,000-gallon water storage tank, and additional projects are in the process of being completed. At this time, the superintendent has determined that the system (after the current projects are complete) will not have any needs that are beyond the scope of the routine maintenance that will be completed with generated income.

## OTHER SYSTEMS

### HOPKINS CO COAL/ISLAND MINE

Hopkins Co Coal/Island Mine is located in Hopkins County. The system serves a population of 90 and has 1 service connection.The private, community system's water is purchased from Madisonville.

## PRIVATE DOMESTIC SYSTEMS

About 2,000 people in Hopkins County rely on private domestic water supplies: 1,000 on wells and 1,000 on other sources.

In Hopkins County most wells, which penetrate sandstone's from depths of less than 300 feet are adequate for a domestic supply. In the areas surrounding Nortonville and south of Richland, most wells produce less than 100 gallons per day at depths of less than 300 feet. In southwestern Hopkins County, south of Charleston, a thin highly faulted zone running east-west yields unpredictable amounts of water to drilled wells.

Generally, ground water is hard and sometimes iron or salt may be present in objectionable amounts. Often ground water becomes saltier with depth north of the highly faulted zone.